

U.S.S.N. 09/658,390

Filed: September 8, 2000

**RESPONSE TO OFFICE ACTION**

**In the Claims**

Claims 1-37 (Canceled).

38. (Currently amended) A composition for forming a ~~water-absorbing~~, high modulus polymeric, hydrogel-forming material comprising at least one macromer and at least one monomer,

wherein the macromer comprises hydrophobic and hydrophilic regions, has a molecular weight of 500 to 200,000 Da and has at least two covalently polymerizable groups,

wherein the monomer contains at least one vinyl ethylenically unsaturated group and has a molecular weight of less than 1,000 Da, and

wherein the monomer comprises at least 30% (wt/wt) of the composition, and

wherein the composition forms a gel upon polymerization, and wherein the gel has a modulus of at least 200 kPa or greater at equilibrium swelling with an aqueous solution.

39. (Original) The composition of claim 38, wherein the composition is in the form of a fluid or paste.

40. (Original) The composition of claim 38, further comprising water.

41. (Currently amended) The composition of claim 38, wherein the macromer is polyethyleneglycol-trimethylene-carbonate-diacrylate poly(ethyleneglycol-trimethylene carbonate-diacrylate).

42. (Original) The composition of claim 38, wherein the monomer is selected from the group consisting of vinyl caprolactam, methyl acrylate, methyl methacrylate, styrene, N-

U.S.S.N. 09/658,390

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vinyl pyrrolidone, and N-vinyl imidazole, diacetone acrylamide, vinyloxyethanol, 2-acrylamido-2-methylpropane, and methyl acryloyl lactate and mixtures and derivatives thereof.

43. (Original) The composition of claim 38, wherein the macromer comprises up to 50% (wt/wt) of the formulation and the monomer comprises at least 45% (wt/wt) of the formulation.

44. (Original) The composition of claim 43, further comprising less than 40% (wt/wt) water.

45. (Original) The composition of claim 41, wherein the monomer is diacetone acrylamide.

46. (Currently amended) The composition of claim 38, wherein upon copolymerization of the macromer and monomer, a polymeric material is formed, wherein the material comprises hydrophobic and hydrophilic regions and is characterized as having the following properties:

- a) absorbing water to less than about 300% of its initial weight, on equilibration with water or bodily liquids;
- b) having a solids content of at least about 20% after equilibration in water or bodily liquids;
- c) having an elongation to failure of at least about 25% at hydration to equilibrium;

and

U.S.S.N. 09/658,390

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**RESPONSE TO OFFICE ACTION**

d) being sufficiently biocompatible to permit the treatment or repair of biological tissue, or used as an implant in a patient.

47. (Previously presented) The composition of claim 38, wherein the monomer has the formula AHK, wherein:

A is a residue of an ethylenically unsaturated acid that is linked to H by a bond selected from ester and amide;

H is the residue of a hydroxy carboxylic acid, a carbonic acid, or an amino acid, which is linked to K by an ester bond; and

K is the residue of an alcohol containing at least one carbon atom.

48. (Original) The composition of claim 47 wherein

A is selected from the group consisting of acrylic, methacrylic crotonic, isocrotonic, tiglic, angelic, and cinnamic acids; maleic, fumaric, citraconic, mesaconic, itaconic, citric and isocitric acids, and monoesters and monoamides thereof, and mixtures thereof;

H is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, hydroxy trimethylene carbonic acid, hydroxy ethylene carbonic acid, hydroxy propylene carbonic acid, hydrolyzed dioxanone, a hydroxyhexanoic acid, an alpha, beta or gamma amino acid of eight carbons or fewer, and mixtures thereof; and

K is an alcohol containing from 1 to about 10 carbon atoms and at least one hydroxyl group, or a mixture of such alcohols.

U.S.S.N. 09/658,390  
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**RESPONSE TO OFFICE ACTION**

49. (Original) The composition of claim 48 wherein A is selected from the group consisting of acrylic acid and methacrylic acid.

50. (New) The composition of claim 38, further comprising at least one polymerization initiator.

51. (New) The composition of claim 50, wherein the initiator is selected from the group consisting of chemical initiators and photoinitiators.

52. (New) The composition of claim 51, wherein the initiator is a component for redox-assisted photopolymerization.

53. (New) The composition of claim 38, wherein the macromer comprises polyethyleneglycol.